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AUTHOR Brooks-Gunn, J.; And Others
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ABSTRACT

This study examined whether problem behavior in early adolescent girls was associated with pubertal processes and other life events and whether social support and positive relationships buffered the adolescent from possible negative effects of biological and social events. White girls (N=150) between the ages of 10 and 13 years completed the Youth Behavior Profile, the Self-Image Questionnaire for Young Adolescents, and the Scale of Early Adolescent Life Events. Physical growth was assessed via physical examination. The results revealed that negative life events, specifically those associated with family and school, were associated with internalizing and externalizing problem behavior, while positive life events were not. Pubertal events were not associated, although an interaction between pubertal events and negative family events was found. The occurrence of negative family events was more likely to be associated with internalizing behavior in premenarcheal than postmenarcheal girls, while in girls for whom no negative events occurred, internalizing behavior was somewhat higher postmenarcheally than premenarcheally. Positive relationships mitigated the consequences of life events, with main and interaction effects being found. (NB)

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The Impact of Pubertal and Social Events upon Girls' Problem Behavior

J. Brooks-Gunn
Educational Testing Service

Michelle P. Warren
St. Luke's-Roosevelt Hospital Center
Columbia College of Physicians and Surgeons

and

James T. Rosso
Educational Testing Service

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Abstract

In this paper, whether problem behavior in early adolescent girls is associated with pubertal processes and other life events is examined; four possible models are proposed that consider additive and interactive effects of biological and social events. In addition, whether social support and positive relationships buffer the adolescent from possible negative effects of biological and social events is explored. One hundred and fifty-two White girls, aged 10 to 13 years, answered questions about maladaptive or problem behavior (Youth Behavior Profile), adaptive or competent behavior (Self Image Questionnaire for Young Adolescents, SIQYA), life events (Scale of Early Adolescent Life Events), and relationships with parents and peers (SIQYA). Physical growth was assessed via physical examination (Tanner Stages, menarcheal status, timing of maturation). Predictions were tested via hierarchical regressions. The major findings follow. First, negative life events, specifically those associated with family and school, were associated with internalizing and externalizing problem behavior, while positive life events were not. Pubertal events were not associated, although an interaction between pubertal events and negative family events was found: The occurrence of negative family events was more likely to be associated with internalizing behavior in premenarcheal than postmenarcheal girls, while in girls for whom no negative events occurred, internalizing behavior was somewhat higher postmenarcheally than premenarcheally (the same was true for secondary sexual development). Second, positive relationships mitigated the consequences of life events, with main and interaction effects being found. Findings are discussed in terms of adult literature on negative life events and the early adolescent literature on the meaning of physical change.

The Impact of Pubertal and Social Events upon Girls' Problem Behavior

Early adolescence has been characterized as a life phase when multiple transitions occur; how young people meet the challenge of negotiating these changes may lay the groundwork for the emergence of behaviors related to adult physical and mental health. Illustrative of this belief is the fact that certain forms of psychopathology first appear in early adolescence (i.e., severe eating disorders) and others are seen much more frequently than in late childhood (i.e., depression and aggression). For example, Rutter, Graham, Chadwick, and Yule (1976) reported a four-fold risk in mild depression from 10 years to 15 years of age. Additionally, gender differences in prevalence rates become more pronounced or occur at the time of puberty for some disorders. Finally, problems such as depressive affect, impulse control, counterregulatory eating patterns, and emotional lability, even in the absence of clinical disorders, either first appear, become more prevalent, or take on forms seen in adulthood during early adolescence. All of these are legitimate areas of investigation in developmental psychopathology (Cicchetti, 1984; Sroufe & Rutter, 1984).

Possible factors underlying problems or disorders seen in early adolescence and the reasons for their increased prevalence need to be elucidated. Recently, focus has been placed on the timing and sequencing of life events that occur during this life phase. The normative approach in which events were seen as age-related and characteristic of all adolescents is being replaced by a sensitivity to individual differences in timing and sequencing (Elder, Caspi, & Burton, in press; Gunnar, in press). Since the adolescent is faced with a series of events to which she must respond, one may ask how well an individual does as a function of type of events experienced,

the simultaneity of their occurrence, and personal and environmental attributes that may modulate an individual's responses to events.

Several different lines of research speak to the possible relations between timing and sequencing of events in early adolescence and problem or maladaptive behavior. First, the adult literature is replete with demonstrations of associations between the experience of stressful life events and psychological distress, physical symptomatology, and loss of self-esteem (Antonucci, 1985; Kaplan, 1983; Thoits, 1982). Are such associations to be found in early adolescence, and do they vary as a function of the event experienced and personal attributes? The elegant work of Simmons, Burgeson, & Reef (in press) suggests that the simultaneity of occurrence of life events may render an early adolescent vulnerable to low self-esteem, problem behavior, and academic difficulties. Second, early adolescent researchers have examined one unique life change of this life phase, that of pubertal growth. The normative physical changes are beyond the control of the young person in most cases and may have both enhancing and negative effects upon behavior. At the very least, they are associated with changes in self-definition and have social stimulus value to others (Brooks-Gunn, 1984; Collins, in press). How pubertal changes influence behavior and how such changes interact with other life events to influence behavior are questions being posed by several research teams. Of particular concern here is the fact that pubertal changes may influence behavior differently as a function of context or the co-occurrence of other life events. For example, being an early maturing sixth grade girl influences body image as a function of attendance at an elementary or junior high school (Simmons, Blyth, & McKinney, 1983). Girls who were early maturers and who have older friends are more likely to drink and be active than those who were on-time or late maturers or who were early maturers and did not have older friends (Magnusson, Strattin, &

Allen, 1985). And, pubertal status has an impact in one context where physical development was negatively valued (a national dance school) but did not in a context where it was positively or neutrally valued (regular school settings; Gargiulo, Attie, Brooks-Gunn, & Warren, in press). Each of these examples demonstrates a context-personal attribute interaction as well as suggesting that life events (moving to a new school, gaining new friends) may result in somewhat different consequences as a function of pubertal changes.

In the present paper, we examine whether problem behavior in early adolescent girls is associated with pubertal processes and other life events and if so, what the nature of this association might be. Four alternative models are proposed that consider additive and interactive effects of biological and social events (see Table 1). In the first, it is assumed that similar relations between negative events and distress will be found in early adolescence and adulthood such that negative life events but not pubertal processes would be associated with problem behavior. The second suggests that associations will differ for adults and early adolescents; in this case, pubertal processes, but not negative life events, would be linked to problem behavior in contradistinction to the adult literature (Antonucci, 1985; Kessler, Price, & Wortman, 1985; Simmons et al., in press; Thoits, 1983). The third model is an additive one based on the premise that both factors, pubertal processes and negative life events, will account for some of the variance in problem behavior. The final model states that problem behavior will be linked to negative life events in some stages of pubertal development but not in others, or will be differentially associated with pubertal stages. This model is based on the premise that pubertal development is not just one of a series of life changes that, when occurring simultaneously with other events, is likely to increase the incidence of problem behavior, but that

pubertal development influences behavior differently as a function of context, in this case the occurrence of negative life events.

Insert Table 1 About Here

Another issue related to possible links between problem behavior and events occurring during early adolescence has to do with factors that may protect the young person from the negative consequences of possibly stressful events. The life events literature has demonstrated that social support and positive relationships may buffer the individual from possible effects of negative events. For example, the joint occurrence of many stressful events and low social support is more predictive of psychological distress than either separately (Kessler & Essex, 1982; Thoits, 1982). Similar findings have been reported in a sample of pregnant adolescents (Barrera, 1981). A related line of research, drawn from the developmental psychopathology literature, focuses on stress resistence. Personal attributes (environmental as well as endogenous) are hypothesized to "modulate" the impact of stressful events upon the individual (Garmezy, Masten, & Tellegen, 1984). In this generic model, social support may be considered a personal attribute or a protective factor. In this paper, the premise that social support, in the form of positive relationships with parent and peers, may buffer the individual from the possible negative consequences of life events is tested via hierarchical regression analyses.

Specific predictions included the following. First, in accordance with the adult literature, it is hypothesized that the occurrence of negative life events will be associated with internalizing and externalizing problem behavior. Additionally, the occurrence of specific negative events may have differential impact upon problem behavior; therefore, the effects of family,

friend, and school events will be examined separately; we expect that negative family events will be more likely to be associated with problem behavior than friend or school events (Hetherington, 1987). In contrast, the occurrence of positive life events will not be related to problem behavior and will not mitigate the effects of negative events. Pubertal development, in and of itself, will not have an impact upon problem behavior, given the majority of findings to date. Since most previously published accounts of pubertal effects have varied as a function of context, we expect interactions between negative life events and pubertal development. Second, it is hypothesized that social support (parent and peer relationships) will modulate the association between negative life events and problem behavior, thus acting as a buffer (Thoits, 1983) or as an arena of comfort (Simmons et al., in press). Parent and peer relationships themselves may vary as a function of pubertal status as has been reported (Hill, Holmbeck, Marlow, Green, & Lynch, 1985; Magnusson et al., 1985; Steinberg, 1987); interactions between relationships and pubertal processes will be examined to see how they might influence problem behavior.

Method

Subjects

One hundred and fifty-two White girls who were 10 to 11 years (39), 11 to 12 years (54), or 12 to 13 years (59) of age were seen at the end of the school year (mean 12.13 years, S.D., 0.80). In the fifth to seventh grades, all girls were in the appropriate grade-in-school for age. They attended one of four private day schools in a large city where private school is the rule rather than the exception; parental education and family social class are similar in this sample to those in affluent suburban school systems. The girls are from well-educated, middle to upper-middle class families. Virtually all of the families were in the two highest of the five Hollingshead social classes (96%; Hollingshead & Redlich, 1958); 85% of the mothers had graduated from

college, and 60% of the mothers were working part or full-time. Girls were equally likely to be first, second, or later born. No sociodemographic differences were found as a function of grade-in-school or age.

Procedure

Girls were recruited from a large cross-sectional study of female adolescent biopsychosocial development. Families were invited to participate in a longitudinal study involving one yearly visit to a hospital laboratory where physical, hormonal, nutritional, and social aspects of development would be assessed. Sixty-seven percent of the families contacted participated; however, only 16 percent actually refused. Nonparticipation was due to (1) the family moving from the metropolitan area or the adolescent's attendance at boarding school (one-quarter), (2) scheduling conflicts due to the adolescent's school activities or summer vacations (one-quarter), and (3) the adolescent's reluctance to having a physical or having blood drawn (one-half). The families who participated in the longitudinal study did not differ from those who did not on maternal education, maternal employment, birth order, or social class. The two groups also were similar with respect to initial physical development (as measured by maternal report; see Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987, for a discussion of the reliability of this procedure), and selected aspects of psychological development (as measured by the nine subscales of the Self Image Questionnaire for Young Adolescents; Petersen, Schulenberg, Abramowitz, Offer & Jarcho, 1984; Offer, Ostrov, & Howard, 1982). All girls were seen in the late spring and summer of 1983 or 1984. The data were gathered in a physical examination, by questionnaire, and by interview. Girls were paid for their laboratory visit.

Measures

Self-report scales were chosen to tap the following constructs: maladaptive or problem behavior, adaptive or competent behavior, life events,

and relationships with parents and peers. Pubertal status was measured via physical examination.

Maladaptive or Problem Behavior. The Youth Behavior Profile, developed by Achenbach and Edelbrock from their Child Behavior Checklist (1981), was used to assess internalizing and externalizing aspects of maladaptive functioning. These two dimensions, considered to be "broad-band" or global, are those identified in most studies of developmental child psychopathology (c.f. Achenback & Edelbrock, 1978; Quay, 1979). Externalizing is a problem cluster characterized by aggression, acting out, and uncontrolled behaviors and internalizing is a cluster characterized by shy, inhibited, anxious and overcontrolled behaviors (Achenbach & Edelbrock, 1978). These dimensions are moderately reliable across instruments and studies (Achenbach & Edelbrock, 1978; Dreger, 1981) and discriminate between children referred for psychosocial problems and nonreferred children (Boyle & Jones, 1985; Achenbach & Edelbrock, 1981). The internalizing dimension is comprised of items tapping anxious, somatic, schizoid, and depressive behaviors (in this sample alpha coefficient, .87), and the externalizing is characterized by delinquent, aggressive and cruel behaviors (alpha coefficient, .91). The correlation between the two dimensions was .66 ($p < .01$); although related, the two dimensions were not identical. Intercorrelations of the subscales to the dimension total indicate that the depression behaviors were most highly correlated with the over-all Internalizing dimension ($r = .80$, $p < .001$) and aggressive behaviors with the Externalizing dimension ($r = .94$, $p < .001$).

Adaptive or Competent Behavior. The Superior Adjustment Scale of the Self-Image Questionnaire for Young Adolescents (Petersen et al., 1984) was used as a measure of competency. The 10 items tap empathetic, achievement, and leadership qualities (e.g. "I am not afraid of competing to succeed,"

"When something happens to one of my friends, I feel sad, too"). In this sample, the alpha coefficient was .71.

Life Events. A list of possible significant life events was generated using earlier scales designed for adolescents (Coddington, 1972; Johnson & McCutcheon, 1980) and open-ended responses to questions about significant events in the cross-sectional study. Given previous research indicating that undesirable life events are more likely to be related to psychological and physical problems than desirable ones (Compas, 1987; Johnson, 1982) and that 12- to 14-year-olds typically only use the appraisal of desirability to distinguish life events (rather than multiple dimensions, including impact and specificity of cause; Davis & Compas, 1986), events were classified as positive or negative. Classifications were based on previous research (Davis & Compas, 1986; Johnson & McCutcheon, 1980). Furthermore, and in contradistinction with previous research on life changes but in accordance with early adolescence research, life events were divided into the three contexts in which the young girl is likely to operate--family, school, and friend. The life events, their classifications, and their frequency of occurrence, are listed in Table 2, and the frequency of occurrence by category in Table 3. Girls were asked to check off all events that had occurred in the past six months.

Insert Tables 2 and 3 About Here

Pubertal Development. Each girl was given a physical examination, at which time Tanner ratings were obtained; pubic hair growth and breast development were rated on a 5-point scale, from prepubertal to postpubertal (Marshall & Tanner, 1969; Reynolds & Wines, 1948). The examinations were conducted by the second author or by a nurse practioner. Interobserver

reliabilities between the two were obtained by an independent assessment of ten girls; agreement was 100% on pubic hair and 90% on breast development. The mean Tanner rating was 2.65 (S.D. 1.06) for the entire sample; 1.64 (0.68) for the 10- to 11-year-olds, 2.57 (0.98) for the 11- to 12-year-olds, and 3.35 (0.80) for the 12- to 13-year-olds. Questions were asked about menarcheal age; such reports are reliable, even for this age group (Brooks-Gunn, Warren, Rosso, & Gargiulo, 1987; Damon, Damon, Reed, & Valadian, 1969; Petersen, 1983). Twenty-one percent of the girls had reached menarche: 3% of the 10- to 11-year-olds, 15% of the 11- to 12-year-olds, and 41% of the 12- to 13-year-olds. Besides these two measures of pubertal status (menarche and secondary sexual development), timing of maturation was calculated. Girls were classifed as early, on-time, or late maturers using norms from the National Health Examination Survey (N=5735). Girls in the highest and lowest 20% percentiles of Tanner staging for their age were classified as early and late respectively, while those in the middle 60% were classified as on-time (Duke, Jennings, Dornbusch, & Siegel-Gorelick, 1982).[1] In this sample, 11% were early, 53% were on-time, and 36% were late.

Relationships with Parents and Peers. Relationships with parents and peers were measured using two scales from the Self-Image Scale for Young Adolescents; alpha coefficients were .83 for the peer relationships scale and .80 for the parent relationships scale. These scales include items rated on a 6-point scale ("not at all true of me" to "very true of me") which tap social support (e.g., "I can count on my parents most of the time;" "I would rather be alone than with kids my age") and affective relational components (e.g., "I think that other kids just do not like me;" "Most of the time my parents are satisfied with me"). Means on these two scales do not vary by grade-in-school or age across girls' adolescent years (Brooks-Gunn, Rock, & Warren, 1987).

Results

Multiple regression/correlation (MRC) data analytic procedures, specifically hierarchical regressions, were used given our interest in testing specific models and in examining a number of factors within a construct (i.e., three different pubertal processes and life events in three domains; Cohen & Cohen, 1975). Such methods offer "a way of providing focus and of controlling proliferation of chance findings" (Garmezy et al., 1984, p. 102; Tellegen, Kamp, & Watson, 1982). Sets of regressions were performed in order to examine the relation of pubertal processes and life events to problem behavior and competent behavior; the four models listed in Table 1 were the basis for the ordering of factors in the regressions. A second set of regressions focused on the role of supportive peer and parent relationships in protecting against negative consequences of stressful life events; the notions of "buffering" from the adult literature and "stress immunity" from the psychopathology literature informed our construction of the regressions (Garmezy et al., 1984; Thoits, 1983).

Impact of Adolescent Events Upon Maladaptive Behavior

The major goal of this paper is to test directly alternative models of the relation between life events and psychological distress during early adolescence. A series of hierarchical regressions were conducted in which internalizing problem behavior, externalizing problem behavior, and competence were the outcomes of interest. In sequence, the factors entered were: age, pubertal status (menarche, secondary sexual development, and maturational timing), negative life events (family, school, friend), positive life events (family, school, friend), interaction of negative life events and pubertal processes, and interaction of positive life events and pubertal processes (interactions for the three different pubertal processes were entered in three separate sets of equations).

As can be seen in Table 4, age and pubertal processes were not associated with internalizing problems. However, negative, life events were, specifically family and, to a lesser extent, school events. Additionally, a significant interaction was found between negative events (family) and pubertal processes (menarche and secondary sexual development). The relation is illustrated in Figure 1 for menarcheal status and family negative events: The occurrence of negative events was more likely to be associated with internalizing behavior in premenarcheal than postmenarcheal girls, whereas in girls for whom no negative events occurred, internalizing behavior was somewhat higher postmenarcheally than premenarcheally. The same relation was found for secondary sexual development (girls in Tanner Stage 1 who experienced at least one negative family event had the highest internalizing problem scores). Turning to the regressions for externalizing problems, age, positive life events, and pubertal processes did not enter the equation (Table 4). Negative life events were associated with externalizing problems. An interaction between pubertal processes and negative events almost reached significance ($p < .08$): Externalizing problems were higher when negative life events occurred premenarcheally than postmenarcheally and in Tanner Stage 1 than later Tanner stages as was found for internalizing problems.

Findings were different for the competence measure; the occurrence of positive life events enhanced competence (Multiple R was .35; R^2 change .06) while it was not influenced by negative life events. Interactions between pubertal processes and life events did not enter into the equations.

Insert Table 4 and Figure 1 About Here

Social Support as a Buffer Against Stressful Events

Following the adult literature, positive supportive relationships were hypothesized to modulate the association between stressful life events and maladaptive behavior. Given the findings from the first set of regressions, we were able to procede in testing this premise. Using the same three outcome variables, the following factors were entered into a series of equations: negative life events (family, school and friends), positive life events (family, school and friends), social relationships (parent and peer), interaction between negative life events and social relationships, and interaction between pubertal processes and social relationships. Age and pubertal processes were not entered given the findings from the first equation and the necessity of limiting the number of factors in any one regression. Positive life events were entered given the possibility that the occurence of positive events in the family and friend contexts might influence the rating of relationships with parents and peers as positive (Johnson, 1982). The interactions focused on negative not positive life events, given the findings in the first set of regressions. Finally, pubertal status by social relationships interactions were examined given the links reported for girls in the early adolescent literature (Hill et al., 1985; Steinberg, 1987). Table 5 presents summaries of these regressions.

Insert Table 5 and Figure 2 About Here

As expected, not only were negative life events (specifically those in the family and school realm) associated with internalizing problems, but positive relationships (with parents and, to a lesser extent, with peers) had a modulating effect. Additionally, the interaction between relationships to parents and puberty almost reached significance ($p < .07$): Premenarcheal girls

who did not report very positive relationships with their parents reported higher internalizing problem scores than postmenarcheal girls with more positive relationships. For externalizing problem behavior, negative life events and social relationships were associated in the expected direction. A significant interaction between peer and parent relationships and negative life events was found (see Figure 2). Specifically, those girls who had less positive peer relationships were more likely to exhibit an increase in externalizing problems when they experienced negative life events than those who girls had more positive peer relationships, over and above the higher problem behavior scores of the former group overall. The same association was found for parent relationships and negative life events.

In contrast, positive but not negative life events were significantly associated with competent behavior, specifically positive school events (R^2 change .07, standardized beta weight .26). Positive relationships also were positively associated with competent behavior independent of the occurrence of life events; peer but not parent relationships accounted for the significant R^2 change (.27; standardized beta weight for peer relationships was .57). The interaction between relationships and negative life events reached significance (R^2 change .03) with peer but not parent relationships having a high standardized beta weight (1.32). For those who did not have positive peer relationships, the occurrence of one or more negative life events reduced competent behavior (Figure 3).

Insert Figure 3 About Here

Discussion

Two of the four models listed in Table 1 described the relations of pubertal and social events to problem behavior. Negative life events were

associated with internal and external problem behavior, similar to the adult literature and the few adolescent studies (Compas, 1987; Gad & Johnson, 1980; Gersten, Langner, Eisenberg, & Orzeck, 1974; Swearinger & Cohen, 1985a, 1985b). Family and school events were associated with problem behavior while the occurrence of negative friend events was not. Effects of familial disruption are well-documented with early adolescents as well as younger children (Hetherington, 1987). School events, with the exception of a move to new school (which was not experienced by this sample, given that the lower and middle schools were housed in one building and that number of students per class was small), have not been investigated as a group of possible stressors. That negative events related to friends did not contribute to problem behavior was somewhat surprising, given the importance of peers to early adolescents (Magnusson et al., 1985; Berndt, 1982; Blyth & Serafica, 1985). Whether the lack of association is due to the events chosen, or to the relatively greater impact of family and school events, is not known. However, moving with a stable cohort to a junior high school was not associated with problem behavior in the Milwaukee Study (Simmons et al., in press), again suggesting that events with friends may not be as stressful as events in other contexts.

Like those few studies that have separated positive and negative events, we found no influence of positive events upon maladaptive behavior. In contrast, positive events, in particular school events, were associated with perceived competence. Negative life events did not impede ratings of competence, suggesting that problem and competent behavior, as measured in this study, are different constructs rather than opposite poles of one dimension (r's between problem and competent behavior were between -.24 and -.35).

No main effects of pubertal processes on internalizing and externalizing problem behavior were found, which may not have been anticipated by some

researchers. It is believed that pubertal changes have a direct role in the rise in depressive affect during adolescence (remember that depressive affect was the main contributor to internalizing problem behavior). However, few previous studies have tested this premise. With regard to our findings, three possibilities for the lack of a direct association with internalizing problem behaivor may be postulated. First, internalizing problem behavior may be a more "broad-band" dimension, so that these findings would not generalize to more specific constructs, such as depression. However, depression was highly correlated with the overall internalizing dimension, and a set of regressions performed only with the depression items yielded identical results to those presented here. Second, more direct effects of puberty might be expected if hormonal status is measured. Levels of circulating gonadal hormones do not show a one-to-one correspondence with secondary sexual characteristics or menarcheal status, in part because of individual differences in sensitivity to hormones. Therefore, a great deal of overlap in hormonal secretions across Tanner stages is common (Faiman & Winter, 1974). Additionally, secondary sexual characteristic growth has social stimulus value to the adolescent, over and above any biological significance. Therefore, it is difficult to tease apart possible biological and social influences of pubertal changes unless both hormones and growth are assessed concurrently. Estrogen has been associated with severe depression in adult women, although it is difficult to make causal attributions about this relation, given the interactions between the hypothalamic-pituitary-gonadal system and environmental conditions (Boyar et al., 1974; Vigersky & Loriaux, 1977). However, such links in the depression literature have led to hypotheses about estrogen-depressive affect links in early adolescence, with some corraborating evidence (Brooks-Gunn & Warren, 1987; Susman et al., 1985).

Third, timing of maturation may play an important role in the expression of affect and impulse control independent of actual pubertal status. However, the present study found no main effect of maturational timing, and most other studies find context to modulate effects of timing upon negative affect expression and problem behavior (Blyth, Simmons & Zakin, 1985; Brooks-Gunn & Warren, 1985; Magnusson et al., 1985). Relations between pubertal processes and problem behavior may be primarily mediated by contextual factors, as demonstrated by the interactions seen in this study. Premenarcheal girls had lower internalizing problem scores than postmenarcheal girls; however, this was true only in the absence of negative family life events. When undesirable events occurred, the association between menarcheal status and internalizing problems was altered; in this study, one might go so far as to characterize pubertal growth as a protective factor, in the face of negative events during early adolescence.

Why might this be the case? Although speculative, it is possible that physical maturity, with its high social stimulus value, brings with it increased internal resources to manage undesirable events. For example, menarche seems to herald increases in social maturity, peer prestige, and self-esteem (Garwood & Allen, 1979; Grief & Ulman, 1982; Simmons et al., 1983). Heightened awareness of body and self-consciousness also occur (Rierdan & Koff, 1980). And the onset of breast development also is associated with enhanced peer relationships, positive body image and popularity (Brooks-Gunn, 1984). These changes may enhance self-definitions in some as of yet unspecified way (Collins, in press). At the same time, pubertal growth has high social stimulus value: More physically mature girls may elicit more freedom from parents (and probably request it from them) making it more likely that they will engage in dating, spend more time with girlfriends, and "distance" themselves from their parents (Hill et al., 1985;

Simmons et al., 1983; Steinberg, 1987). Friends also may respond to the girl's more mature body: Boys may be more likely to ask them out on dates and girls may gravitate toward more mature girlfriends (Magnusson et al., 1985). Finally, friendships may become more intimate during puberty as girls discuss these developments with their best friends. These changes may result in more independence, especially from the family, which may be particularly protective if stressful events involve the family. In brief, a more mature body may facilitate the growth of internal coping skills as well as offer an "arena of comfort" as described by Simmons et al (in press). In our study, peers may act as such an arena, being a refuge from stressful events occurring in the family or in school. This aforementioned premise is partially confirmed by the second set of regressions, in which the adolescent's vulnerability to negative events is partially offset by the availability of resources, in this case positive, supportive relationships with peers. Having one arena of comfort may make it easier to negotiate the other anticipated and unanticipated life changes occurring during early adolescence (Simmons et al., in press).

Vulnerability to negative events may in part be due to the unavailability of personal and social resources needed. Indeed, less developed girls may have less resources, or may perceive their resources differently. In support of this possibility, in the second set of regressions, premenarcheal girls with less positive parent relationships had higher internalizing scores than premenarcheal girls with more positive relationships. This association is independent of the occurrence of negative and positive family events, making it unlikely that the relation is due to girls with less positive parent relationships having had more negative events occur. At the same time, having less positive peer or parent relationships resulted in the early adolescent being more vulnerable to externalizing behavior problems when confronted with

negative events. Such findings support the premise that social support may buffer the young person from untoward consequences of the occurrence of negative life events (Thoits, 1983).

Possible limitations of the preceding analyses involve the construction of life event scales generally. Some of the items may be manifestations, as well as causes, of problem behavior, such as school problems and arguments with parents (Johnson, 1982). Causal attributions then, must be made with caution. Additionally, little information on reliability exists for such scales, as either the parent or the child is asked about the occurrence of events. However, Garmezy et al. (1984) report moderate stability in negative life event scores across a one year period. Finally, life events may be categorized on other dimensions besides desirability; the impact of an event and whether it is within or out of an individual's control are examples (Kessler et al., 1985). However, 12- to 14-year-olds categorize events in terms of one dimension, desirability, and the vast majority of adult studies have focused on this dimension. More generally, our sample is limited to middle to upper-middle class girls; whether similar associations, especially the interaction with pubertal processes, would be found in more heterogenous samples of lower class groups or different ethnic groups is unknown. Interestingly, Simmons et al. (in press) report fewer effects of multiple transitons upon problem behavior in Black than White subgroups of the Milwaukee Study girls and in working- than in middle-class boys. They postulate that disadvantages possibly inherent in the working-class may act as a type of "stress-inoculation." Finally, personal attributes in late childhood may predispose some young adolescents to be more influenced by negative life events and unsupportive relationships. Moderate stability in depressive affect has been reported in late childhood and early adolescence (Seligman & Petersen, 1986). However, pubertal processes are probably quite

independent of earlier attributional styles, such that the pubertal interactions seen in this study are probably not being accounted for by earlier individual differences in other personality factors.

In sum, pubertal processes, in and of themselves, did not contribute to individual differences in problem behavior; they did via an interaction with the occurrence of social events. Additionally, the simultaneity of negative life events also influenced problem behavior. Together, these findings suggest that rises in problem behavior reported in early adolescence may be due in part to the convergence of multiple social and biological events that the young woman faces. Whether the occurrence of life events at this time predispose the young adolescent to have more difficulty with subsequent negative life events or life changes is an as yet answered but particularly intriguing question.

Footnote

[1]At age 10-11, a girl was classified as early if her combined Tanner rating for breast and pubic hair development was 3.5 to 5.0, on-time if she was between 1.5 to 3.0, and as late if she was 1.0. At age 11-12, an early maturer's Tanner rating was between 4.0 and 5.0, an on-time maturer between 2.0 and 3.5, and a late maturer between 1.0 and 1.5. Age age 12-13, early maturation was a rating of 4.5 and 5.0, on-time maturation a rating of 2.5 and 4.0, and late maturation a rating of 1.0 and 2.0.

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Table 1

Four Possible Models for Predicting Negative Affect in Early Adolescence

MODEL	PREDICTION
Difference Model	Pubertal change or pubertal status but not negative life events related to depressive affect (different from findings in studies of adults).
Similarity Model	Negative life events but not pubertal change or pubertal status associated with depressive affect (similar to findings in studies of adults).
Additive Model	Negative life events and pubertal change or pubertal status each are independently associated with depressive affect
Interaction Model	Negative life events are associated with depressive affect in some stages of pubertal development but not in others, or negative life events are more associated with depressive affect in some pubertal stages than in other stages.

Table 2: The Scale of Adolescent Life Events: Items Classified by Context and Desirability
(in percentages)

Context	Desirability	Item	Frequency of Occurrence
School	Positive	Did better than expected at school	47
		Won an award at school	28
		Won an election at school	15
		Tried out for and made team	27
		Started playing a musical instrument	06
		Started a new sport/team	19
School	Negative[a]	Did not make team	03
		Quit from team	01
		Lost an election	11
		Called to principal's office for disciplinary action	03
		Was given demerits or charges	03
		Parents called about school problem	01
		Did worse than expected in school	15
		Quit a sports team	03
		Quit musical lessons	08
Friends	Positive	Started to date	27
		Have a boyfriend	48
		Started seeing new group of friends	39
		Made a new best friend	34
Friends	Negative	Broke up with boyfriend	32
		Falling out/broke up with friend	26
		Falling out/broke up with best friend	18
		Physical fight with friend	05

Table 2 (Continued): The Scale of Adolescent Life Events:
Items Classified by Context and Desirability
(in percentages)

Context	Desirability	Item	Frequency of Occurrence
Family	Positive	Got along better with parents	25
		Got along better with siblings	37
Family	Negative[b]	Parents separated	05
		Parents divorced	03
		Parents reunited	01
		Getting along worse than before with parents	17
		Getting along worse than before with siblings	14
		Physical fight with sibling	29
		Death in family	24

[a]School transition was not included since these students do not move.

[b]Parental changes in work status, school attendance, and family residence (without change in parental composition) were not included given the difficulty in classifying as positive or negative. A separate category of life changes was derived and entered into initial regressions; no relations were found.

Table 3: Occurrence of Life Events by Desirability and Context
(in percentages)

		Negative Life Events		
		Family	School	Friend
Frequency of Occurrence	None	53	63	51
	One	31	25	27
	Two or more	17	11	22
	Number of items	6	9	4

		Positive Life Events		
		Family	School	Friend
Frequency of Occurrence	None	53	30	29
	One	33	29	22
	Two or more	15	41	49
	Number of items	2	6	4

Table 5: Impact of Positive Relationships Upon the Association Between Negative Life Events and Problem Behavior

Problem Behavior			Internalizing			Externalizing		
			Multiple R	R^2 Change[b]	Beta[c]	Multiple R	R^2 Change[b]	Beta[c]
Step 1	Negative Life Events							
		Friend			-.01			.20
		Family			.35			.29
		School	.39	.15***	.19	.39	.15***	.19
Step 2	Positive Life Events							
		Friend			.10			.02
		Family			-.02			.16
		School	.42	.02	.11	.42	.03	-.06
Step 3	Relationships							
		Parent			-.41			-.36
		Peer	.57	.15***	-.15	.56	.14***	-.20
Step 4	Relationships by Puberty[a]							
		Parent			-.82			-.08
		Peer	.60	.03*	.26	.57	.01	-.37
Step 5	Relationships by Negative Events							
		Parent			.26			.86
		Peer	.61	.02	-1.13	.60	.04**	1.16

[a]Menarcheal status entered into equation. The results were the same when breast growth was entered into the equation. Interaction with relationships not significant when timing of maturation entered.

[b]Significance of R^2 change tested (F test)

[c]Standardized beta weights

*** $p < .01$ ** $p < .05$ * $p < .10$

Table 4: Impact of Puberty and Life Events upon Problem Behavior

Problem Behavior			Internalizing			Externalizing		
			Multiple R	R^2 Change[b]	Beta[c]	Multiple R	R^2 Change[b]	Beta[c]
Step 1	Age	Age	.07	.00	.07	.01	.00	-.00
Step 2	Puberty	Timing			-.11			-.09
		Menarche			-.09			-.00
		Stages	.16	.02	-.13	.13	.02	-.23
Step 3	Negative Life Events	Family			.34			.33
		Friend			-.08			.15
		School	.42	.15***	.17	.42	.16***	.20
Step 4	Positive Life Events	Family			.13			.02
		Friend			-.15			-.04
		School	.46	.03	-.05	.46	.03	-.20
Step 5	Puberty by Negative Events[a]	Family			-1.04			-.64
		Friend			-.12			.13
		School	.54	.09***	-.10	.50	.04*	-.29
Step 6	Puberty by Positive Events[a]	Family			-.11			-.26
		Friend			-.11			-.88
		School	.54	.00	.02	.53	.03	-.13

[a] Menarche entered as pubertal event. The same relation was found for timing of maturation and secondary sexual development.

[b] Significance of R^2 change tested (F test)

[c] Standardized beta weight

*** $p < .01$ ** $p < .05$ * $p < .10$

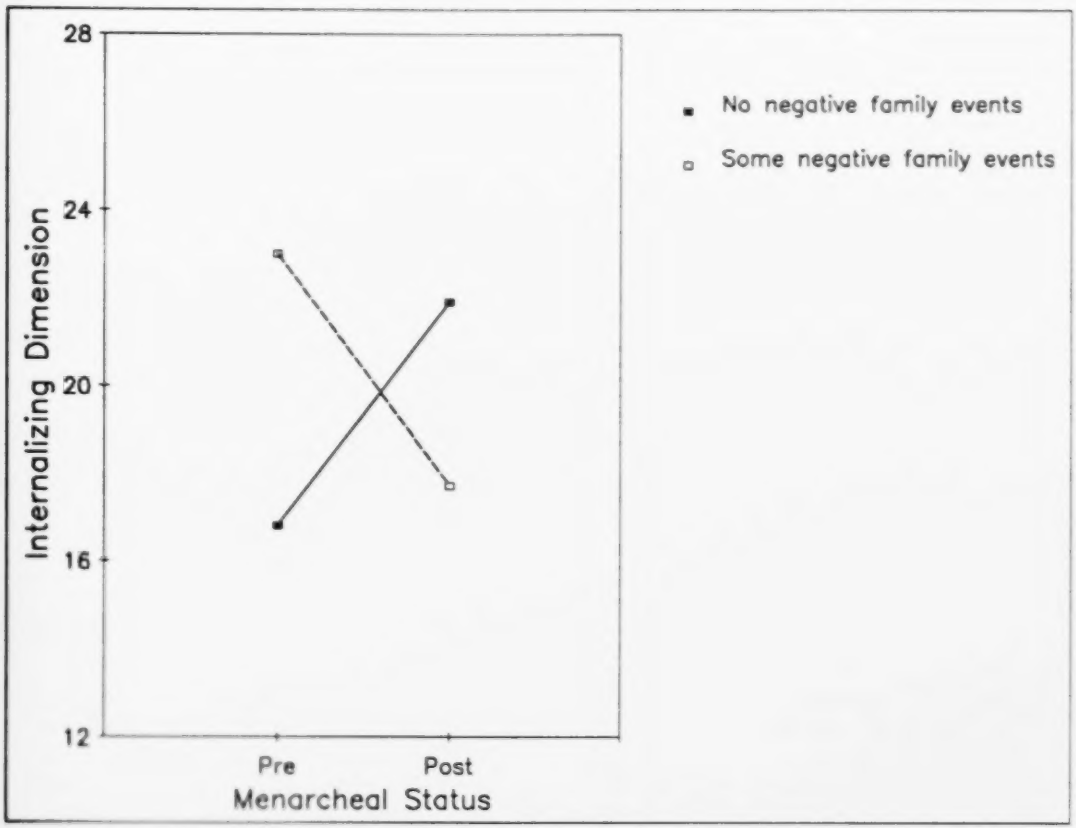

Figure: The Interaction of Menarcheal Status and Negative Family Events Upon Internalizing Problem Behavior

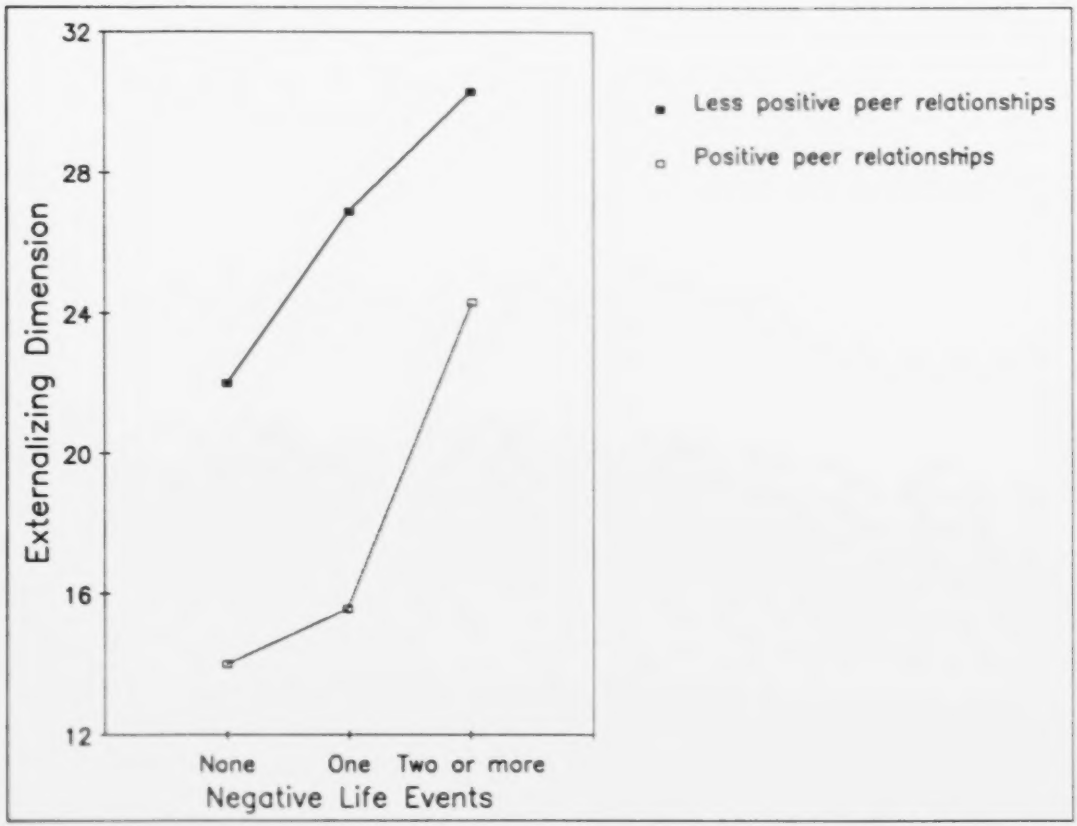

Figure: V The Interaction of Peer Relationships and Negative Life Events Upon Externalizing Problem Behavior

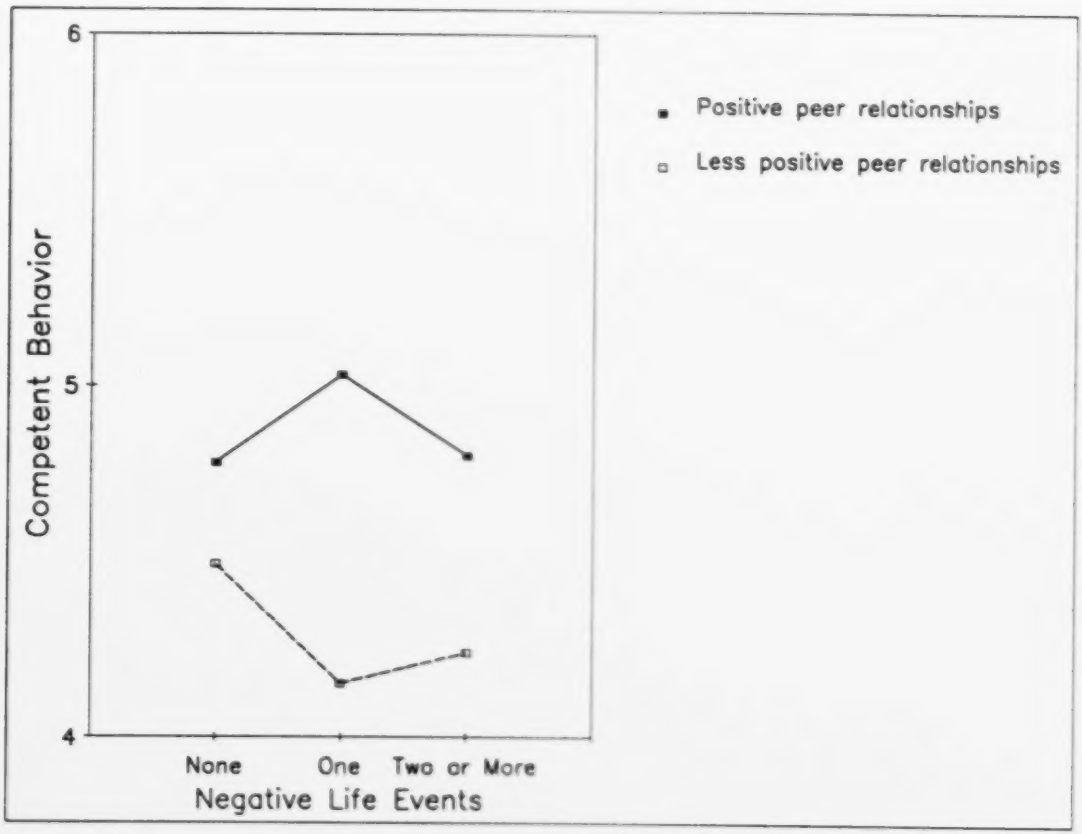

Figure: 3 The Interaction of Peer Relationships and Negative Life Events upon Competent Behavior